

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
)
Per Gustafsson et al.) Group Art Unit: 1732
)
Application No.: Continuation of 09/269,507) Examiner: E.H. Lee
)
Filed: [On Even Date Herewith])
)
For: APPARATUS AND METHOD FOR)
MOULDING AN OPENING DEVICE)
ON A PACKAGING SHEET)
)

PRELIMINARY AMENDMENT IN CONTINUATION APPLICATION
UNDER 37 C.F.R. § 1.53(b)

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to taking up for action on the merits the above-captioned Rule 53(b)
continuation application, kindly amend the application in the following manner.

IN THE SPECIFICATION:

Kindly add the following paragraph of the Specification:

At page 1, between lines 2 and 3, insert:

This application is a continuation of U.S. patent application serial number
09/269,507, filed March 29, 1999, now U.S. Patent No. _____, which is a
national stage application under 35 U.S.C. § 371 of International application
PCT/SE97/01594, filed September 23, 1997, which International application was published

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of :
PER GUSTAFSSON, et al. : Group Art Unit: Unassigned
Serial No. UNASSIGNED :
Filed: March 29, 1999 :
For: APPARATUS AND METHOD FOR :
MOULDING AN OPENING DEVICE ON :
A PACKAGING SHEET :

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Claim 13, line 3, delete "one or more of claims 9-12", and insert --claim 9--.

Claim 14, line 2, delete "one or more of", and insert --claim 9--;

line 3, delete "claims 9-12".

REMARKS


The above amendments have been made to remove the multiple dependencies in the claims.

Early and favorable action in connection with this application is respectfully requested.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By



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Alexandria, VA 22313-1404
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Date: March 29, 1999

3/29/99

in English and designated the United States, and which International application claims priority to Italian patent application MI96A002272, filed October 31, 1996.

IN THE CLAIMS:

Kindly cancel Claims 13 and 14, without disclaimer of or prejudice to the subject matters thereof.

Kindly rewrite Claims 1-12, as follows; please note, however, that only Claims 1, 2, 4, 5, and 9 are amended, the remaining claims being rewritten to assist in publication and examination of the application.

1 1. (Amended) An opening device moulding apparatus for injection moulding
2 plastics material opening devices at holes in a packaging material sheet, comprising:
3 at least one first mould tool arrangeable in a closed position so as to be in contact
4 with a first side of the sheet positioned at said opening device moulding station and
5 arrangeable in an open position so as to be positioned distally from the first side of the
6 sheet positioned at said opening device moulding station;
7 at least one second mould tool arrangeable in a closed position so as to be in contact
8 with a second side of the sheet positioned at said opening device moulding station and
9 arrangeable in an open position so as to be positioned distally from the second side of the
10 sheet positioned at said opening device moulding station;
11 wherein in the closed positions of said first and second mould tools a mould cavity
12 is formed between said first and second mould tools for at least partially accommodating a
13 hole edge in the sheet positioned at said opening device moulding station;
14 an injection passage for injecting heated thermoplastics material into said mould
15 cavity, wherein said injection passage extends in at least one of said first and second mould
16 tools such that the thermoplastics material is injected directly into the mould cavity at an
17 injection point of the mould cavity which is located distally from said hole edge
18 accommodated in said mould cavity; and
19 a drive mechanism for selectively moving said first mould tool and said second
20 mould tool between said open and closed positions, at least one of said first and second
21 mould tools including a pair of half mould tools, wherein said drive mechanism is
22 configured such that the direction of movement of each of said half mould tools between

23 said open and closed positions have a directional component extending substantially parallel
24 to the extension plane and a directional component extending substantially perpendicularly
25 to the extension plane.

1 2. (Amended) The apparatus of claim 1 wherein said mould cavity has a
2 base portion for accommodating said hole edge in the closed positions of said first and
3 second mould tools and for forming a base of said moulded opening device, and a lid
4 portion for forming a lid of the moulded opening device.

5 3. The apparatus of claim 1 wherein said injection point of the mould cavity is
6 arranged at said lid portion in a substantially central position with respect to said base
7 portion.

8 4. (Amended) The apparatus of claim 3 wherein said injection passage
9 extends substantially perpendicularly to the extension of said lid portion of said mould
10 cavity.

1 5. (Amended) The apparatus of claim 1, wherein said drive mechanism
2 comprises:
3 a supporting structure for supporting said half mould tools such that in the open
4 position said half mould tools are mutually spaced from each other in an extension plane
5 extending substantially parallel to the plane of extension of the sheet and such that in the

6 closed position said half mould tools are mutually arranged in contact with each other and
7 with said second side of the sheet; and
8 a driver for moving said half mould tools simultaneously from the open position to
9 the closed position and vice versa.

1 6. The apparatus of claim 5 wherein said drive mechanism is configured such
2 that the direction of movement of each of said half mould tools between said open and
3 closed positions tangentially follows a circular path.

4 7. The apparatus of claim 5 wherein in said closed position said sheet extends
5 in a plane which is distally spaced from the plane of extension of said sheet in said open
6 position.

7 8. The apparatus of claim 5 further comprising an adjustable biasing device for
8 adjustably setting a contact force between said half mould tools in said closed position.

9 9. (Amended) A method for direct injection moulding of a plastics material
10 opening device to a hole which is disposed in a sheet of packaging material and which has
11 a hole edge, comprising the steps of:
12 moving at least one first mould tool from an open position to a closed position in
13 contact with a first side of the packaging sheet material and moving at least one second
14 mould tool from an open position to a closed position in contact with a second side of the

7 packaging sheet material, thereby forming a mould cavity defined between said first and
8 second mould tools in a manner such that at least a portion of said hole edge is arranged
9 inside said mould cavity, wherein in the open positions said mould tools are mutually
10 spaced from each other in an extension plane;

11 wherein at least one of said first and second mould tools defines a pair of half
12 mould tools, and comprising moving said half mould tools along a direction of movement
13 of each of said half mould tools between said open and closed positions in a direction of
14 movement having a directional component extending substantially parallel to the extension
15 plane and a directional component extending substantially perpendicularly to the extension
16 plane; and

17 injecting plastics material into said mould cavity so as to form the plastics material
18 opening device wherein the plastics material is injected directly into the mould cavity at an
19 injection point of the mould cavity which is located distally from said portion of the hole
20 edge.

1 10. The method of claim 9 including arranging the first and second mould tools
2 so as to form a mould cavity having a base portion for forming a base of the opening
3 device and a lid portion for forming a lid of the opening device in a manner such that all of
4 said hole edge is arranged inside said base portion of said mould cavity.

1 11. The method of claim 10 including injecting plastics material at an injection
2 point arranged at the lid portion of the mould cavity in a substantially central position with
3 respect to said hole edge.

1 12. The method of claim 11 including injecting plastics material through a
2 injection channel which is disposed in one of said first and second mould tools and which
3 extends substantially perpendicularly to the extension of said lid portion of said mould
cavity.

REMARKS

Favorable consideration, examination, and allowance of the present patent application are respectfully requested. The foregoing amendments are presented in order to claim further aspects of the present invention. No new matter has been entered (see, e.g., original Claim 5). Claims 2 and 5 have been amended in a manner similar to amendments presented in the parent application.

If Mr. Lee believes that a telephone conference with the undersigned would expedite passage of the present patent application to issue, he is invited to call on the number below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: _____

Adam J. Cermak
Registration No. 40,391

P.O. Box 1404
Alexandria, Virginia 22313-1404

703.836.6620

Date: August 10, 2001

1 1. (Amended) An opening device moulding apparatus for injection moulding
2 plastics material opening devices at holes in a packaging material sheet, comprising:
3 at least one first mould tool arrangeable in a closed position so as to be in contact
4 with a first side of the sheet positioned at said opening device moulding station and
5 arrangeable in an open position so as to be positioned distally from the first side of the
6 sheet positioned at said opening device moulding station;
7 at least one second mould tool arrangeable in a closed position so as to be in contact
8 with a second side of the sheet positioned at said opening device moulding station and
9 arrangeable in an open position so as to be positioned distally from the second side of the
10 sheet positioned at said opening device moulding station;
11 wherein in the open positions said mould tools are mutually spaced from each other
12 in an extension plane;
13 wherein in the closed positions of said first and second mould tools a mould cavity
14 is formed between said first and second mould tools for at least partially accommodating a
15 hole edge in the sheet positioned at said opening device moulding station; [and]
16 an injection passage for injecting heated thermoplastics material into said mould
17 cavity, wherein said injection passage extends in at least one of said first and second mould
18 tools such that the thermoplastics material is injected directly into the mould cavity at an
19 injection point of the mould cavity which is located distally from said hole edge
20 accommodated in said mould cavity; and
21 a drive mechanism for selectively moving said first mould tool and said second
22 mould tool between said open and closed positions, at least one of said first and second
23 mould tools including a pair of half mould tools, wherein said drive mechanism is
24 configured such that the direction of movement of each of said half mould tools between
25 said open and closed positions have a directional component extending substantially parallel
26 to the extension plane and a directional component extending substantially perpendicularly
27 to the extension plane.

1 2. (Amended) The apparatus of claim 1 wherein said mould cavity has a
2 base portion for accommodating said hole edge in the closed positions of said first and
3 second mould tools and for forming a base of [a] said moulded opening device, and a lid
4 portion for forming a lid of the moulded opening device.

1 4. (Amended) The apparatus of claim 3 wherein said injection [channel]
2 passage extends substantially perpendicularly to the extension of said lid portion of said
3 mould cavity.

1 5. (Amended) The apparatus of claim 1, [further comprising a drive
2 mechanism for selectively moving said first mould tool and said second mould tool between
3 said open and closed positions, at least one of said first and second mould tools comprising
4 a pair of half mould tools,] wherein said drive mechanism comprises:
5 a supporting structure for supporting said half mould tools such that in the open
6 position said half mould tools are mutually spaced from each other in [an] the extension

plane [extending] which extends substantially parallel to the plane of extension of the sheet and such that in the closed position said half mould tools are mutually arranged in contact with each other and with said second [sheet] side of the sheet; and

a driver for moving said half mould tools simultaneously from the open position to the closed position and vice versa [such that the direction of movement of each of said half mould tools between said open and closed positions comprises a directional component extending parallel to said extension plane and a directional component extending perpendicularly to said extension plane].

9. (Amended) A method for direct injection moulding of a plastics material opening device to a hole which is disposed in a sheet of packaging material and which has a hole edge, comprising the steps of:

[arranging] moving at least one first mould tool from an open position to a closed position in contact with a first side of the packaging sheet material and [arranging] moving at least one second mould tool from an open position to a closed position in contact with a second side of the packaging sheet material, [and] thereby forming a mould cavity defined between said first and second mould tools in a manner such that at least a portion of said hole edge is arranged inside said mould cavity, wherein in the open positions said mould tools are mutually spaced from each other in an extension plane;

wherein at least one of said first and second mould tools defines a pair of half mould tools, and comprising moving said half mould tools along a direction of movement of each of said half mould tools between said open and closed positions in a direction of movement having a directional component extending substantially parallel to the extension plane and a directional component extending substantially perpendicularly to the extension plane; and

injecting plastics material into said mould cavity so as to form the plastics material opening device wherein the plastics material is injected directly into the mould cavity at an injection point of the mould cavity which is located distally from said portion of the hole edge.

ABSTRACT OF THE DISCLOSURE

An apparatus and method for moulding opening devices onto a packaging material sheet at respective holes provided in the sheet includes first and second mould tools arrangeable in a closed position so as to be in contact with opposite sides of the sheet and in an open position so as to be positioned distally from the sheet. In the closed positions a
5 mould cavity is formed between the first and second mould tools for accommodating a hole edge in the sheet. One of the mould tools includes a pair of half mould tools which are simultaneously moved from the open position to the closed position and vice versa such that the direction of movement of each of said half mould tools between the open and closed positions have a directional component extending substantially parallel to the extension plane and a directional component extending substantially perpendicularly to the extension plane, for reducing wear of the mould tools.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	Attention: DRAFTING BRANCH
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Per GUSTAFSSON et al.)	Group Art Unit: 1732
)	
Application No.: Continuation of 09/269,507)	Examiner: Lee, E.
Filed March 29, 1999)	
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For: APPARATUS AND METHOD FOR)	
MOULDING AN OPENING DEVICE)	
ON A PACKAGING SHEET)	

SUBMISSION OF FORMAL DRAWINGS

Box Issue Fee

Assistant Commissioner for Patents
Washington, D.C. 20231

ATTN: OFFICIAL DRAFTSMAN

Sir:

Enclosed please find seven sheet(s) of formal drawings for review by the Patent and Trademark Office in connection with the Notice of Allowance mailed May 11, 2001. Should the enclosed drawings require changes, it is respectfully requested that the Patent and Trademark Office notify the undersigned of same.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 

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Date: August 10, 2001